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RISK FACTORS FOR SEXUAL VIOLENCE IN THE MILITARY: AN ANALYSIS OF SEXUAL ASSAULT AND SEXUAL HARASSMENT INCIDENTS AND REPORTING

by

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Using the *2014 RAND Military Workplace Study*, this thesis studies the effects of demographics, prior victimization, deployment status, and workplace characteristics—specifically, command climate, leadership and training quality—on both incidence and reporting of sexual assault and sexual harassment. Sexual assault consists of a nonconsensual sexual act coupled with a use of force or threat thereof that is likely to cause physical harm to individual. Sexual harassment consists of undesired sexual advances, requests, or other conduct of a sexual nature in word or deed that creates an offensive or hostile working environment. These definitions are consistent with the terms as they are defined by the Uniform Code of Military Justice and Equal Employment Opportunity Commission. Analysis of survey respondents is done separately for men and women. In both male and female subjects, there is a strong correlation between outcome variables and the following factors: deployment status, ineffective leadership, and a problematic workplace environment.

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AN ANALYSIS OF SEXUAL ASSAULT AND SEXUAL HARASSMENT
INCIDENTS AND REPORTING**

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Submitted in partial fulfillment of the
requirements for the degree of

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LIST OF ACRONYMS AND ABBREVIATIONS

AC	Active Component
DMDC	Defense Manpower Data Center
DOD	Department of Defense
DSAID	Defense Sexual Assault Incident Database
EEOC	Equal Employment Opportunity Commission
RMWS	*RAND Military Workplace Study*
RNG	Reserve and National Guard
SAPR	Sexual Assault Prevention and Response
SAPRO	Sexual Assault Prevention and Response Office
TDY/TAD	Temporary Duty/Temporary Additional Duty
UCMJ	Uniform Code of Military Justice
VA	Veterans Affairs
WGRA	*Workplace and Gender Relations Survey of Active Duty Members*

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I.   INTRODUCTION

The 2012 documentary, "The Invisible War," placed military sexual assault in the limelight in America. This film thrust an already prevalent and highly researched issue into the face of the American public and their elected officials, seemingly for the first time. The quantity of research examining sexual misconduct in the military soon significantly increased (Castro, Kintzle, & Schuyler, 2015; Sadler, Mengeling, Booth, O'Shea, & Torner, 2016; Mengeling, Booth, Torner, & Sadler, 2014; O'Toole, Kilmartin, & Peterson, 2014; Stander & Thomsen, 2016). In addition, the quantity of reporting and prevention training within the armed forces also increased. Sexual Assault Prevention and Response Training is now required within 14 days of reporting on active duty and annually thereafter. Training is also required within 30 days of leaving for and returning from deployment. Moreover, professional military education and mandatory leader development training now covers sexual assault prevention and response topics as well (Department of Defense, 2013). In many cases, this training is conducted quarterly at a minimum, at the discretion of the commanding officer, particularly at recruiting commands (NRD New Orleans, 2014).

Despite robust training requirements and initiatives, deficiencies in terms of knowledge and understanding still remain, specifically in regard to gender stereotypes and rape myth acceptance (Castro, Kintzle, & Schuyler, 2015, p. 2–3). In addition, the quality and validity of training and prevention approaches to address challenges in military lifestyle and culture still require overhaul (Stander & Thomsen, 2016, p. 22). Furthermore, a stigma associated with reporting, retaliation, and other negative outcomes from reporting persists (Mengeling et al., 2014, p. 21). *Any* sexual assault in *or* outside the context of the military is a tragedy. Yet, despite the national attention, little headway has been made in the manner of truly preventing its occurrence. Despite the notions that "increases in reporting of sexual assault do not necessarily imply an increase in crime" and "sexual assault reports are not a measure of prevalence" (Department of Defense, 2016, p. 22), the data according to fiscal year 2012 DOD SAPRO report shows 3,374 service members experiencing sexual assault. That number grew to 6,083 service members experiencing

sexual assault in 2015. These numbers represent 0.24% and 0.46% of all service members, respectively. While a seemingly small percentage, the effects of sexual misconduct in the workplace, particularly in the military, are pervasive.

Many reports made in 2016 captured events that occurred in 2015, and approximately 10% of victims reported an incident that actually occurred before they entered the military (Department of Defense, 2016, p. 7). While we can achieve a level of understanding of the effects of sexual assault in the military, delayed reporting makes it increasingly difficult to fully measure the prevalence of this underreported crime. These patterns do suggest, however, that the makers of policy on sexual assault are missing the mark. Furthermore, true progress may require calling into question everything "known" about the topic of sexual assault, and approaching it from a new perspective.

A.   MOTIVATION

Despite the aggregate increase in sexual assault reporting over the past years—2,670 in 2009 to 6,083 in 2015—a significant number of sexual assaults go unreported each year (Department of Defense, 2010, 2016). The U.S. military is an organization built on pride, professionalism, unit cohesion, and trust. The tasks, missions, and way of life demand a level of commitment, togetherness, and integrity that surpasses most civilian–sector environments. Accordingly, any type of sexual assault or breach of trust proves not only detrimental to mission accomplishment, but potentially debilitating to the entire force. The Department of Defense (DOD) annual report on sexual assault shows nearly a 100% increase in the number of reported sexual assaults from 2012 to 2015. However, it is unclear whether this increase is due to an increase in actual incidents or increase in reporting. Historically, the culture within the military has been one in which reporting sexual assault had negative impacts on the career, reputation, and overall welfare of the victims (Bergman, Palmiere, Cortina, & Fitzgerald, 2002, p. 232–233). For these reasons, sexual assault has emerged as a significant topic of discussion and research in the last decade.

A recent *RAND Military Workplace Study* (2014) showed nearly 18% of respondents did not report when they were sexually assaulted because they "thought the

situation was not serious enough to report." (Morral, Gore, & Schell, 2015, p. 142). An additional 17% "wanted to forget about it and move on" (p. 142). Finally, another 18% questioned the integrity of the reporting and investigation process in some way (p. 142). The why behind the way in which most respondents choose to answer survey questions reveals the core issue. A better understanding of why individuals do or do not report sexual assault, as well as the incidence trends will lead to better training, better policy, and better leadership development. Hence, we should improve the culture around reporting and expect to see a decline in sexual assault occurrence.

The remainder of this thesis is organized as follows. Chapter II is the literature review and addresses: (1) the definition of sexual assault and sexual harassment; (2) the psychology of sexual violence from an empirical perspective; (3) studies using military data sets; and (4) studies using civilian data sets. Chapter III focuses on the data and methodology. This chapter captures the construction of the main dependent variables and the key independent variable, as well as the logistic regressions used for the empirical analysis. Chapter IV describes the summary statistics and results. Finally, Chapter V offers concluding thoughts, study limitations, and recommendations for future policy and research.

B.   RESEARCH OBJECTIVE

In this thesis, I address the following research questions:

1.   How are demographics, workplace environment characteristics, and leadership and training quality correlated with incidents of sexual assault and sexual harassment?

2.   Conditional on incidents, how do reporting of sexual harassment and sexual assault differ across the same set of factors described above?

The two outcomes—sexual harassment and sexual assault—are highly correlated and should be investigated together. These questions address the heart of research in the area of sexual assault, particularly in the Department of Defense.

Using the *2014 RAND Military Workplace Study*—the RAND Corporation's revised version of the semi-annual *Workplace and Gender Relations Survey for Active Duty Members (WGRA)*, this thesis evaluates the relationship between sexual assault and

harassment reporting in surveys, and the following independent variables: gender, branch of service, paygrade, command climate characterized by problematic workplace environment and effectiveness of leadership, quality of training, prior victimization both pre-service and in-service, and deployment status. Does the likelihood of being or reporting having been a victim of sexual harassment and sexual assault vary systematically with respect to these characteristics? The results from this thesis can help identify high-risk segments of the military population for targeted interventions. This research uses logistic regression analysis to evaluate survey responses from more than 160,000 active duty service members, who completed one of two survey forms capturing data on workplace environment characteristics, personal demographics and experiences pertaining to sexual assault and sexual harassment in the past year.

Controlling for demographics, gender, and survey form, the key findings of the 2014 RMWS suggest increased risk of sexual assault or sexual harassment associated with females, junior paygrades, prior victimization—especially in the military, naval service, and a toxic work environment characterized by ineffective leaders and poor quality training. For example, relative to a comparable Army female service member, a Navy and Marine female service member is 1.42 and 1.43 times more likely to experience sexual assault, respectively ($p < 0.05$ for both). Similarly, a woman who had prior victimization experience in her military career is 5.31 times more likely to experience sexual assault within the past 12 months relative to those without prior victimization who have comparable demographic and service characteristics. In addition, among comparable women, a problematic workplace environment and ineffective leadership is associated with 2.26 and 2.41 higher odds of being sexually assaulted, respectively, relative to women who do not report a problematic workplace environment or ineffective leadership. Overall, my results suggest that prior victimization, particularly in the military, workplace culture and climate are especially correlated with sexual misconduct incidence and reporting.

II.   LITERATURE REVIEW

Research in psychology relating to both civilian and military settings has studied sexual assault and harassment. In this chapter, I summarize these studies and describe my contribution to the literature. However, first, a proper definition of sexual assault is in order.

A.   DEFINITION OF SEXUAL ASSAULT AND SEXUAL HARASSMENT

The Uniform Code of Military Justice and all subsequent United States Defense Department instructions characterize rape or sexual assault as a use of force or threat of force likely to cause bodily harm in conjunction with a sexual act upon another person against his or her will or without consent (Article 120). The Equal Employment Opportunity Commission, observed by the United States Military, defines sexual harassment as "unwelcome sexual advances, requests for sexual favors, or other verbal or physical conduct of a sexual nature" that affects employment decisions or creates an offensive or hostile working environment (Exec Order No. 12067, 29 C.F.R. 1604.11 1999). Using these definitions, I evaluate prior researchers' findings on sexual harassment as well as sexual assault, because the two are highly correlated (Stander & Thomsen, 2016, p. 1). While the specifics of the link between these two crimes are largely unknown, examining the two together provides a better framework for answering the research questions.

B.   PSYCHOLOGY OF SEXUAL VIOLENCE FROM AN EMPIRICAL PERSPECTIVE

Research suggests sexual assault is a crime of power (Groth, 1977, p. 253). This power seems to manifest itself as aggression exhibited sexually or non-sexually. Rape or sexual assault may be classified as sexual aggression, and is a result of interaction with sexual promiscuity (Malamuth, Sockloskie, Koss, & Tanaka, 1991, p. 670) or rape myth acceptance (Burt, 1980, p. 217). In either case, rape and sexual assault appear to be acts of instrumental aggression, committed to achieve some desired end state—i.e., sex (Hamilton, 1990, p. 111). Generally, younger individuals are more likely to be victims of sexual

assault; 54% of reported victims are between the ages of 18 and 34 (RAINN, n.d.). Women are also at a higher risk of being on the receiving end of sexual violence, especially college-aged women, whether they are students or not. While only 3% of men experience sexual assault in their entire lifetime, 9 in 10 sexual assault victims are female (RAINN, n.d.). Early scholars and their research findings on the subject seem to agree—increased rape knowledge, dispelled attitudes supporting violence against women, and correcting an incorrect or exaggerated view of masculinity are associated with decreased propensity to rape (Tieger, 1981, p.147). An important question remains: Are these factors consistent across both military and civilian populations?

C.   STUDIES USING MILITARY DATA

The following sections and corresponding observations from the existing body of knowledge on sexual misconduct in the military contribute to the construct of all independent and dependent variables in the econometric analysis outlined in Chapters III and IV.

1.   General Trends

The vast majority of prevalence rates for sexual assault and sexual harassment victimization come from one of three sources: Veterans Affairs (VA) treatment facilities, Defense Sexual Assault Incidence Database (DSAID), and the semi-annual *WGRA*. These mediums historically report between 15% and 36% of women and 1% to 5% of men screening positively for military sexual trauma (MST) of some sort, specifically sexual assault or sexual harassment (Stander & Thomsen, 2016, p. 21). A number of issues exist with respect to these prevalence rates, ranging from the fact that surveys are only administered biannually and inevitably subject to self-selection biases, memory loss, lying, or measurement error due to the manner in which questions are posed to respondents. Additional prevalence rate determination challenges include heterogeneity in sample characteristics and study designs of research, or the reality that only those veterans seeking treatment contribute to the VA's data on MST prevalence. Widely accepted risk factors for MST include, younger age, excessive alcohol use, rape supportive attitudes indicative of military culture and hyper-masculinity as well as organizational climate (Stander &

Thomsen, 2016, p. 21; Rau et al., 2010, p. 429; DMDC, 2013). Many of these risk factors are proven in civilian environments, but mere presumptions about military environments. Further research could validate these assumptions.

In the last several fiscal years, the US Defense Department has observed a steady increase in the number of reports of sexual violence, with a slight leveling off in the FY2015. DOD SAPRO attributes these increases to an increase in reporting due to improved policy and practices that encourage victims to come forward. They do not believe the increases are associated with an increase in actual incidence occurrence. This assertion is a difficult one to make, however, due to the nature of the crime itself being underreported (Department of Defense, 2016, p. 22; McWhorter, Stander, Merrill, Thomsen, & Milner, 2009, p. 204). Researchers must carefully scrutinize any change in reporting prevalence or perceived improvement, because any actual improvement is likely the result of aggregate change in DOD policy and prevention methods, and may also be dependent upon what unique changes were made to a particular year's approach to research and its respective effectiveness. For example, the DOD has conducted little research to assess the effectiveness of its bystander intervention program and its translation to a military environment, though the approach has been more widely researched in the civilian sector (Stander & Thomsen, 2016, p. 23). In short, one must use caution when interpreting these types of data.

A significant gap exists in research evaluating offender characteristics, particularly in the military context (Houser, 2007, p. 961). The little research that does exist on the topic finds that approximately 12% of all newly reported recruits in the Navy have perpetrated sexual assault prior to entering the military (McWhorter et al., 2009, p. 214). Based on empirical analysis and self-reports by recruits, a Sailor who has perpetrated rape before entering the military is 10 times more likely to repeat this crime in the first year of service than one who has not (p. 210). 2014 *RMWS* prevalence rates suggest an estimated 18,900 service members experienced some form of unwanted sexual contact (Department of Defense, 2015), and according to RAINN, 71% of all unwanted sexual contact is perpetrated by someone the victim knows. These statistics coupled with the reality that alcohol or other substances are most often used to assist in facilitating the crime (Houser,

2007, p. 963; McWhorter et al., 2009, p. 213) suggest certain factors pertinent to the nature of the crime are perhaps exacerbated by military culture, making it especially difficult to mitigate risk and eliminate the problem of sexual assault or sexual harassment.

2. Command Climate and Leadership

The hierarchy, command structure, and long-standing traditions and culture in the military make climate and leadership very legitimate factors contributing to the prevalence of sexual assault or sexual harassment at a given command. Leadership may in fact be a risk of or potential solution to sexual violence in the military (Sadler et al., 2016, p. e1). In her 2016 study, Dr. Sadler and her team found that of 177 servicewomen 13% experienced sexual assault. Of those, women who reported negative leadership behaviors, such as allowing sexually demeaning comments or failing to address sexual misconduct taking place in living quarters of which they were presumably aware, were 2.7 times more likely to report sexual assault victimization (p. e1).

Bergman et al. (2002) conducted a study of 6,417 eligible male and female participants on determinants and effects of sexual assault and harassment reporting. Their findings suggest reporting failed to improve, and at times even worsened, the victim's professional and personal status (p. 231). Moreover, their findings make the case that leaders can influence sexual assault reporting, because the leadership and command climate most directly affect whether or not an individual reports victimization.

Mengeling et al. (2014) conducted telephone interviews with a total of 1,339 Active Component (AC) and Reserve and National Guard (RNG) servicewomen and veterans, to collect data on servicewomen's reporting experiences, comparing non-reporters (official) with reporters (official), identify factors associated with reporting, and uncover more barriers to reporting (official) sexual assault for servicewomen (Mengeling et al., 2014, p. 18). Of the female sample, 205, or 15% experienced sexual assault and 25% reported, a very large percentage relative to other studies and annual statistics (p. 17). Of those 205 servicewomen, on average, more AC experienced sexual assault, but they were no more likely to report (official) victimization than their RNG counterparts. Unrestricted reporting was rated less favorably, but exercised more frequently than the restricted reporting option.

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Lastly, this sample suggested female officers were less likely to report sexual assault victimization than their enlisted counterparts. Though the study did not make this assertion, one might conduct further research to evaluate whether or not the nearness to her leadership in day-to-day activities, particularly senior officers, contributes to her being less likely to report sexual assault than an enlisted female.

3.   The Deployment Effect

Deployment affects each service member differently. There has been little research on deployment's effects on the prevalence of sexual assault or sexual harassment. A great deal of research has addressed the effect of deployment on PTSD and other physiological wellness issues (Shen, Arkes, & Pilgrim, 2009; Polusny et al., 2011, p. 79; Vasterling et al., 2010, p. 41). In addition, most research pertaining to sexual assault and sexual harassment seems to focus on the combat effects rather than deployment and the unique characteristics associated with the manner in which each branch of the military and sub-community deploys. For example, certain classes of submarines stay submerged for months at a time and very seldom pull into ports, while ships observe relatively similar close quarters living situations, but make regular port visits. Meanwhile, certain deployments in the Marine Corps or Army lend themselves to 12 months or greater in the desert or different facilities at a local base or forward operating base. The Air Force and certain communities within the Navy do not deploy by ship, and even observes extended stays in hotel-type facilities on deployment. Each of these deployment experiences has unique stressors, opportunities, and experiences associated with it.

The Deployment Risk and Resilience Inventory (DRRI) is a validated study that developed a metric by which one may evaluate stressors and mitigating factors to health risks associated with deployment (Vogt, Proctor, King, King, & Vasterling, 2008, p. 391). A 2014 National Guard study used the DRRI framework and discovered a correlation between unit support and decreased reports of sexual assault and sexual harassment among Soldiers (Walsh et al., 2014, p. 602). Of the 1,644 Ohio National Guardsmen, 44% of women and 13% of men reported experiencing sexual harassment on their most recent deployment. Meanwhile, 19% of women and 1% of men reported experiencing sexual

assault on their most recent deployment. Positive responses to questions like "I feel a sense of camaraderie between myself and other Soldiers in my unit" were associated with decreased numbers of sexual violence incidents, while psychological support factors, such as having a friend's or loved one's encouragement did not (p. 602).

LeardMann et al (2013), however, was the first of its kind to analyze risk factors of sexual assaults for service women in current operations, and looking specifically at the deployment effect. Using the Millennium Cohort Study longitudinal data, Dr. LeardMann and her team estimated the effect of recent Iraq or Afghanistan deployments in the War on Terror, along with other individual and environmental characteristics, on experiencing sexual assault, sexual harassment, or other sexual stressors among female US service members. Their findings revealed women who were deployed and reported combat experience were significantly more likely to report having been victimized of sexual assault, sexual harassment, or both. In addition, younger age, recent separation or divorce, service in the Marine Corps, and a positive screen for a baseline mental health condition were identified as significant risk factors for sexual stressors (LeardMann et al., 2013, p. e215).

4.   The Training Effect

Rau, et al., (2010) conducted a randomized clinical trial to evaluate the effectiveness of the Navy Sexual Assault Intervention Training (SAIT) program for male Sailors. They assessed a sample of 1,505 men for rape knowledge, rape myth acceptance, and rape empathy after participating in the SAIT program or an equivalent, and observed results consistent with prior findings. The program "was found to be effective in increasing rape knowledge, reducing rape myth acceptance, and increasing empathy for rape victims" (Rau et al., 2010, p. 429). However, this study was not a longitudinal study, and the results only indicate immediate effects captured via post-test administered during clinical trials. These results do not reflect follow-on behavior changes observed through additional study.

The various research teams observed certain biases and issues in the course of their analyses. In the Bergman study, using cross-sectional data rather than longitudinal data may subject the study to measurement error. To mitigate this risk, the 2014 *RMWS* required

the respondent to identify a date and used it as a reference point for all questions pertaining to time to reduce the recollection challenges and make up for anything lost in capturing cross-sectional data (Morral et al., 2014, p. 45). In the Bergmann study, the team did not use annual fixed effects, to control for temporal factors that influence respondents in the same manner. The estimates on deployment could also be biased, because of omitted variables. For example, fiscal-related stress, home foreclosure, violence and stress of mission, and other unobservable factors that can and do change from year to year may have a positive or negative effect on both the Iraq/Afghanistan deployment and the likelihood of experiencing a sexual stressor or sexual assault.

This thesis does not consider such issues, because the survey data used in this analysis is cross-sectional, instead of longitudinal. LeardMann et al.'s 2013 assertion that female Marines were significantly more likely to report sexual stressors is difficult to ascertain given an overall lack of power in the model. Marines made up only 1.9% of the total sample. The 2014 *RMWS* is a more representative sample, and econometric analysis outlined in chapter four addresses some of these shortfalls. However, the wording of some specific survey questions prevents the accomplishment of any noteworthy empirical analysis on the deployment effect using 2014 *RMWS* data. Each of the questions pertaining to deployment is interlocked with combat or the receipt of hazardous duty/imminent danger pay. The alternative responses associated with these questions limit the respondent to at sea, TDY/TAD, or field exercise locations, and each of these is vastly different depending on the branch of service. More questions with more detailed and narrower response options would be necessary to gather the pertinent data to conduct a meaningful analysis with respect to deployment. In this study, less restrictive definitions of sexual assault and sexual harassment, a shorter overall survey length, a rewording of questions to refrain from cueing crime and create a neutral context will also address some of the shortfalls observed in previous studies. Previous research observed limitations and potentially skewed results due to respondent survey fatigue, narrow definitions of sexual assault laden with legal terminology (Morral et al., 2014, p. xiv). Furthermore, I draw on the findings in early research to identify the source of relevant correlates—specifically prior victimization, personal demographics and experiences specific to a given demographic, command

climate, and culture—of sexual assault and harassment generally agreed upon in the field (Burt, 1980, p. 217; Groth, 1977, p. 249; Malamuth et al., 1991, p. 670).

D.   STUDIES USING CIVILIAN DATA

The following sections and corresponding observations from the existing body of knowledge on sexual misconduct in civilian settings, namely on college campuses, contribute to the construct of all independent and dependent variables in the econometric analysis outlined in chapters III and IV.

1.   General Trends

Prevalence rates for sexual assault in the civilian sector primarily come from the National Crime Victimization Survey (NCVS) and the Center for Disease Control (CDC). The 2015 NCVS states the sexual assault prevalence rate is 1.6 for every 1,000 people. While this figure represents a 63% decrease since 1993, sexual assault remains a significant problem in American society, particularly among women and transgender, genderqueer, or nonconforming (TGQN) individuals on college campuses, and Native Americans in the general American population (RAINN, n.d.; Cantor et al., 2015). Native Americans are twice as likely to experience rape or sexual assault compared to all other races or ethnicities (RAINN, n.d.). 1 of every 6 women will experience an attempted or completed sexual assault in her lifetime, and 1 of every 33 men (RAINN, n.d.). The crime, risk factors, and destructive cycles associated with it are perpetuated annually and at early ages in life— approximately 63,000 children per year were victims of sexual assault from 2009 to 2013, usually between the ages of 12 and 17 (RAINN, n.d.). The improvement in rape prevalence in the civilian population may be encouraging, but an American is raped every 98 seconds.

Sexual assault and sexual harassment risk factors vary depending on the environment, much like the military. For example, sexual violence in the workplace is correlated with socialization—particularly isolation, politics, and tolerance of sexual behaviors among employers (Garrett, 2011, p. 20). Females aged 16 to 24, whether college students or not, are between three and four times more likely to be victims of sexual assault (RAINN, n.d.). On college campuses, students are at increased risk in their first year, and more than 50% of sexual assaults occur between August and November. Immediate

questions begin with "Why?" Undoubtedly, future research is in order, particularly to distinguish differences in different civilian environments, understand the validity and effectiveness of training and prevention efforts, and determine any parallels to military environments.

2. College Campus Sexual Assault

In 2014, members of the Association of American Universities (AAU) conducted a comprehensive study comprised of 27 institutions of higher education (IHEs) to identify prevalence rates, risk factors, and campus climate around sexual assault and sexual misconduct. This study was one of the first of its kind, producing statistically reliable estimates with a standard methodology across several colleges with a sample size of nearly 800,000. Some of the more significant findings include, more than 50% of victims of sexual assault on college campuses do not report, because they do not consider it "serious enough"; overall, 11.7% of students across the 27 colleges reported experiencing some form of unwanted sexual contact; the rates are highest among TGQN individuals, undergraduate students of private universities in comparison to public universities, and smaller campuses in comparison to larger campuses (Cantor et al., 2014, p. xii). Furthermore, the research for seniors shows victimization rates as high as 21.2% since initial enrollment (p. xiv). Beyond general statistics, the study also demonstrated the importance of comparisons between IHEs—a great deal of variation exists and global rates such as "1 in 5" are both oversimplified and at times misleading (p. xv).

For sexual harassment, the study shows an incidence rate ranging from 49% to 74% across all 27 IHEs. The general trends observed by demographic in sexual assault prevalence are consistent in sexual harassment prevalence. However, 61.9% of female undergraduates report being sexually harassed, typically through inappropriate comments about their body, appearance, or sexual reputation. Of those sexually harassed, 38% experienced this type of behavior, while another 30% experienced sexual remarks or offensive jokes. This study is subject to scrutiny, however, because of the large number of respondents who were victims of sexual assault or harassment. The research team inadequately addressed nonresponse bias and the response propensity was related to being

a victim, evidenced by the difference in victimization rates between incentivized and non-incentivized groups (Cantor et al., 2015, p. 126).

The campus climate around sexual assault, harassment, and general sexual misconduct also contains a large amount of variation. Between 2% and 40% of students view sexual misconduct as a problem on their campus. Other factors around the culture or climate of the campus include 44% of students witnessing a drunken person heading for a sexual encounter, but only a quarter of respondents choosing to intervene in some way. The specificity of this study in applying a uniform methodology across 27 different colleges, and then evaluating each college accordingly brings to light the need to conduct future research in a similar manner.

3.   The Training Effect

Rape myth acceptance, rape knowledge, and propensity to rape are correlated (Burt, 1980, p. 217); however, little recent research has comprehensively evaluated the effectiveness of training programs targeted toward these risk factors (Breitenbecher, 2000, p. 23). Breitenbecher's study provides an extensive review of sexual assault prevention programs and their evaluated effectiveness at changing attitudes, cognitions, and behavior (p. 23). Nearly every study conducted after 1967 found that sexual assault prevention programs were effective in some way (p. 24). Yet, America has not observed any substantial decrease in sexual assault incidence until 1993 (RAINN, n.d.).

Breitenbecher evaluated training effectiveness of 16 programs based on "attitudes, behavioral intentions, self-reported behaviors, directly observed behaviors, self-reported sexual victimization, and self-reported sexual aggression" (Breitenbecher, 2000, p. 24). Significant findings show sexual assault prevention programs are effective in producing short-term reductions in rape myth acceptance and rape-supportive attitudes; however, this finding does not necessarily mean rape incidence decreased due to training, because very little research includes sexual assault incidence as an outcome variable (p. 38). Her findings also suggest a more positive trend in training effectiveness when training is gender and culture-specific, for example, single sex and targeted specifically toward one people group— African American men in the culturally relevant intervention reported "greater

cognitive involvement" (p. 37). In addition, she found the bias toward favorable results in the evaluation of training effectiveness is because, "studies that result in nonsignificant findings are often less likely to be published" (Breitenbecher, 2000, p. 40). In this case, perhaps an ounce of prevention is *not* worth a pound of cure.

4.   The Childhood Experience Effect

Malamuth, et al. (1991) conducted a study with 2,652 college men who reportedly aggressed against women sexually, non-sexually, or both. The team evaluated subjects based on home environment, delinquency, sexual promiscuity, attitudes supporting aggression, hostile masculinity, social isolation, and coerciveness. Using a structural model approach, this particular study aimed on developing and testing causal models, rather than identifying correlates Although it is important to keep in mind that even though a study "aimed" at establishing causality, it is not necessarily true—in clinical community, anything short of randomized control trial is not accepted as establishing causality. The findings suggest that "hostile childhood experiences affect involvement in delinquency and lead to aggression through two paths: hostile attitudes and personality resulting in future sexual and non-sexual coercion, or sexual promiscuity," which leads to future sexual aggression, especially when interacted with hostility (Malamuth, et al., 1990, p. 670). The findings suggest sexual aggression results from higher levels of hostile masculinity and sexual promiscuity (p. 680).

Overall, the findings of the study are in agreement with prior research, and contribute new discoveries rather significantly. This study may explain some of the prevalence rates observed on college campuses, if in fact childhood experiences affect sexual promiscuity and shape attitudes and behavior. Most psychology would suggest a link between sexual promiscuity, attitudes, and future behavior, yet the link to sexual assault incidence has not yet been consistently empirically proven (Breitenbecher, 2000, p. 40). Nonetheless, the findings demand the question—how many recruits enter service in the US military come from experiences such as those described in this study? How are these service members' individual risk factors for sexual assault and sexual harassment

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affected? How might the DOD better train these service members to more effectively mitigate risk and resultantly reduce the incidence of sexual misconduct?

E.   SUMMARY

With a few exceptions, the consensus in the field holds that rape knowledge, unhealthy views of masculinity, home environment, attitudes supporting aggression, prior victimization, and sexual promiscuity are associated with sexual assault, and may be fairly consistent predictors. Interacting these risk factors through econometric analysis and taking a deeper look at their relationship is in order, because each of these variables was found to be significantly associated with being a sexual assault offender, or suggesting that one would perpetrate the act (Tieger, 1981, p. 147). In addition, there are certain behavioral characteristics and experiences that are associated with each of these risk factors, particularly in the military. The bulk of the research done in a military setting has emphasized the victim and his or her individual perspective. This research aims to focus on specific demographics and characteristics—namely branch, rank, deployment status, the quality of SAPR training received, and command climate comprised of both the workplace environment and the effectiveness of one's leaders—in order to fill the aforementioned gaps in determining what factors contribute to incidence and reporting of sexual harassment and sexual assault.

III. DATA AND METHODOLOGY

In this chapter, I describe the data used for the empirical analysis and the construction of the dependent and key independent variables. A proper explanation of the data set itself and the survey sample is in order, first.

A. DATA

I gathered the data for my thesis from the 2014 *RMWS*, sponsored by the Office of the Secretary of Defense (OSD) Sexual Assault Prevention and Response Office (SAPR). The 2014 *RMWS* is a survey comprised of 4 forms—2012 *WGRA* "prior form", "short form", "medium form", and "long form"—and no more than 73 respondent-dependent questions (Morral et al., 201, p. xiii). My data and analysis focus on the "short form" that was administered to the entire sample and the "long form" that was only administered to a randomly selected subset of the sample. The short form consists of a sexual assault module and general screening items (p. xiii). The long form consists of sexual assault and sexual harassment modules, and detailed questions about command climate, attitudes, beliefs, and other related issues. RAND took practical steps to reduce nonresponse bias, increase survey participation and ensure a representative sample through nonresponse weighting, creating various forms of the survey, particularly the short form, making the survey smart-phone compatible, and placing the sexual assault and sexual harassment modules at the beginning of the survey (p. xiv). In addition, RAND depended heavily on the previously successful model of the Defense Manpower Data Center (DMDC) 2012 *WGRA*. 2014 represents the first and only year that RAND conducted this semi-annual study.

B. SAMPLE POPULATION

RAND invited nearly 560,000 service members representing the Army, Navy, Air Force, Marine Corps, and Coast Guard to participate in the survey. Specifically, the sample included a census of all active duty women and 25% of active duty men, making this study the largest of its kind in military history (Morral et al., 2014, p. xii). For the primary analysis of sexual assault and sexual harassment victimization, my sample size is nearly 140,000 service members when analyzing the short-form questions and nearly 19,000 when

analyzing the subset of sample that received more-detailed questions on work environment. For the secondary analysis on sexual assault and sexual harassment reporting via official channels, my sample size is limited to those respondents victimized in the previous 12 months—nearly 25,000 service members in the whole sample and 7,000 in the subset that answered long-form questions. In my analysis, I use the new RAND generated sampling weights throughout to generate weighted results that control for issues related to differential survey response biases. (p. 24).

C.   KEY VARIABLES

For my analysis, I construct the following binary outcome variables—sexual assault, sexual harassment, reported sexual assault, and reported sexual harassment—and the following key independent indicator variables—command climate characterized by workplace environment, effectiveness of leadership, and quality of training. Additional independent variables include deployment status at time of report, demographics characterized by rank and branch of service, and prior victimization. All variables consist of events having transpired in the past 12 months.

1.   Outcome Variables

The following outcome variables were created based on available data and prior research.

a.   Sexual Assault

The variable Unwanted Sexual Experience with Contact captures the incident of sexual assault in the past 12 months based on the respondent-selected date at the beginning of the survey for point of reference. I constructed the variable using 6 questions from the sexual assault module and 2 questions from the sexual harassment module, because these questions fit the DOD definition of sexual assault (Department of Defense, 1999). The questions from the sexual assault module generally addressed whether or not the respondent experienced unwanted physical contact with his or her own, or another person's genitals, objects or body parts put into their mouth, anus, or vagina as applicable or vice versa. The questions addressed varying circumstances, particularly the location of any

unwanted contact, whether the touching was underneath or on top of clothing, and attempted but not completed penetration. The two remaining questions from the sexual harassment module capture unwanted or unnecessary physical contact of a sexual nature specifically perpetrated by someone at work. (Morral et al., 2014, p. 136–138, 118–119). The survey administrators generated binary responses for each of these questions with a simple "yes" or "no" option. A person is coded as having experienced unwanted sexual contact if he or she answered "yes" to at least one of the 8 questions.

Worded differently from the 2012 *WGRA* by simplified syntax and clarified terminology, these questions perhaps more accurately capture each individual survey response relative to previous surveys. Some tradeoff exists in the ability to improve survey respondent understanding of each question, because no questions lead the respondent down a consent-related thought process, though consent is a part of the very complex definition of sexual assault in accordance with the Uniform Code of Military Justice (UCMJ, Art 120).

b.   *Sexual Harassment*

The variable Unwanted Sexual Experience without Contact captures the incident of sexual harassment in the past 12 months based on the respondent-selected date at the beginning of the survey for point of reference. I constructed the variable using 11 questions from the sexual harassment module. The survey administrators generated binary responses for each of these questions with, again, a simple "yes" or "no" option. These questions from the sexual harassment module generally addressed whether or not the respondent experienced discomfort, ridicule, offense, or anger because of being the target of or witness to inappropriate sexual speech, content, or behavior. Such acts include sexual jokes, off-color comments including words such as "dyke", "butch", "fag" and a general questioning of gender roles and identity, or the displaying of sexually explicit material (Morral et al., 2014, p. 117). In addition, respondents were asked to identify whether they experienced or witnessed "someone from work repeatedly tell you about their sexual activities", inquire about another's sexual activities or interests, make sexual comments about one's appearance or body, or attempt to establish an unwanted sexual relationship (p. 117–118). Lastly, these questions encompassed quid-pro-quo or exchanging sexual favors for

workplace benefits as well as threats of maltreatment if the respondent did not grant sexual favors. A person is coded as having an unwanted sexual experience without physical contact if he or she answered yes to any of these 11 questions. It is important to note that the two outcome variables were constructed using two sets of non-overlapping questions. A person can experience both types of outcomes or just one of the outcomes, depending on how he or she answers those 19 questions.

c. Sexual Assault Reporting

This variable captures the reporting of an incident of sexual assault *via official* channels in the past 12 months, again, based on the respondent-selected date at the beginning of the survey for point of reference. I constructed the variable using 12 follow-up questions from the sexual assault module. These questions primarily reflected whether or not a respondent reported via official channel or listed a number of response options. In order to create my variable, I captured the questions including response options exclusively for official reporting, i.e., if they report to the SARC, chain of command, SAPR VA, Safe Helpline, medical professional, chaplain, special victims' counsel or victims' legal counsel, JAG, an officer or non-commissioned officer outside the chain of command, or military law enforcement (p. 149-150). The last question used to generate this variable asks the respondent plainly, "did you officially report this unwanted event to the military" (p. 152). A person is coded as having reported the sexual assault incident if he or she reported to at least one of the channels described above or answered "yes" to the final sexual assault module follow-up question. Note that for the purpose of this analysis, a person would receive a value of 0 on this outcome if the person reported to an unofficial channel, such as a friend or family member.

d. Sexual Harassment Reporting

This variable captures the reporting of an incident of sexual harassment via official channels in the past 12 months, again, based on the respondent-selected date at the beginning of the survey for point of reference. I constructed this variable using two follow-up questions from the sexual harassment module. Only two questions inquired whether the respondent reported his or her experience to anyone in their chain of command, or officially

reported it to the equal opportunity manager or equivalent (p. 133). Each respondent answered these questions with a simple "yes" or "no". It is important to note that sexual harassment is not a topic trained to as frequently as sexual assault and the reporting procedures are not as set apart. Sexual harassment falls under the category of equal opportunity, and is oftentimes discovered or identified as such after a thorough investigation of some other offense (EEOC, 1980, 29 C.F.R. 1604.11). A person is coded as having reported the sexual harassment incident if he or she reported to at least one of the channels described above.

2.   Demographic Variables

I included the following demographic variables in my regression analysis. These variables include indicators for branch of service and rank—broken down further into E-1 to E-3 (reference group), E-4, E-5 to E-6, E-7 to E-9, officer, O-1 to O-3 (reference group), O-4 to O-6, and Warrant Officers and Limited Duty Officers (LDOs). In order to preserve anonymity, RAND refused to release any further demographic information about survey respondents such as, age, race or ethnicity, marital status, years of education, etc. I did not control for gender because all the models were run separately by gender and survey form because the existing literature finds that risk factors for sexual assault and harassment vary by gender (RAINN, n.d.; Cantor 2014, p. x; Department of Defense, 2012, 2013, 2014, 2015, 2016).

3.   Prior Victimization Variables

Previous findings suggest including a variable for prior victimization, because early exposure to or victimization through sexual misconduct whether childhood or adult experience is associated with increased risk for future victimization (Malamuth et al., 1991, p. 670; Department of Defense, 2014, 2015, 2016). The same is true of offenders or perpetrators, though with fewer research findings (McWhorter et al., 2009, p. 209). All models include binary prior victimization control variables. There are two separate variables—prior victimization before the respondent's military career, and prior victimization during the respondent's military career. These variables were generated by one of two survey questions asking each respondent forthrightly, "Did any of these

unwanted experiences happen after [or before] you joined the military" (Morral et al., 2014, p. 159–160). Furthermore, I created two distinct prior victimization variables, because the offense may have occurred under varying circumstances eliciting varying effects depending on the age of the victim, relationship to the perpetrator, and other factors that may vary based on one's affiliation with the military (Malamuth et al., 1991, p. 678). A person is coded as being a prior victim if he or she answered "yes" to any one of the two follow up survey questions.

4.   Command Climate Variables

I constructed the following command climate variables: an indicator for problematic workplace environment and an indicator for ineffective leadership. Each of these variables is comprised of long-form or complete survey questions that were answered by the random long-form subsample.

First, the problematic workplace indicator variable is comprised of nine questions (longform15a-i) evaluating how often certain behaviors were experienced in the past twelve months. These behaviors include a coworker or supervisor intentionally interfering with work performance, not providing necessary assistance, harshly criticizing work performance, taking credit for the respondent's work, gossiping about, insulting, humiliating, swearing or yelling at the respondent, or damaging his or her property or personally owned military equipment (Morral et al., 2014, p. 166). These questions have five response options ranging from "very often" to "never". A person is coded with a "1" if he or she never experienced any of the above behaviors by a coworker or supervisor. A person is coded with a "2" if he or she experienced the above behaviors "sometimes" or "once or twice". A person is coded with a "3" if he or she experienced the above behaviors "often" or "very often". The sequential numbering in coding this variable captures an increasingly problematic workplace environment. Based on these nine questions, a person is then coded as having a problematic workplace environment if he or she answered "often" or "very often" to five or more of the above questions.

Next, the ineffective leadership indicator variable is comprised of five questions (longform12a-e) evaluating how well the respondent's unit leadership performed the

following: made it clear that sexual assault is unacceptable, promoted "mutual respect and trust", led by example, quickly addressed sexual harassment issues, created a positive environment for victims to report sexual harassment (p. 165). These unit leadership behaviors affect both sexual misconduct incident and reporting rates (Sadler, et al., 2016, p. e7). A person is coded with a "1" if he or she indicated unit leadership performed the above actions "very well" or "well". A person is coded with a "2" if he or she indicated unit leadership performed the above actions "neither well nor poorly". A person is coded with a "3" if he or she indicated unit leadership performed the above actions "poorly" or "very poorly" (Morral et al., 2014, p. 165). The sequential numbering in coding this variable captures increasingly ineffective leadership. Based on these five questions, a person is then coded as having ineffective leadership if he or she answered "poorly" or "very poorly" to three or more of the above questions.

In summary, each of the workplace environment questions requires the respondent to rank the quality of his or her relationship with supervisors, peers, and coworkers and how often they experienced negative behaviors, such as gossip, swearing, interference, insults, or a general lack of support (Morral 2014, p. 166). The leadership effectiveness questions require the respondent to indicate how well his or her leadership promoted trust and respect, addressed issues with professionalism in the workplace, created a safe and positive environment to promote the reporting of and discourage the participation in sexual assault or harassment (p. 165).

5.   Training Quality Variables

I constructed an indicator variable if training was received. The training indicator is further broken down to reflect the type of training received—primarily (1) preventative or intervention focused training and (2) reporting or after-action training. I used nine long-form questions to generate the training indicator variable. Four questions (longform23a-d) comprise the preventative training variable and the remaining five questions (longform23e-h, j) comprise the after-action training variable. Each of these long-form questions captures the respondent's assessment of his or her service's sexual assault training. More specifically, these questions give the respondent five response options ranging from

"strongly disagree" to "strongly agree" with specific aspects of the training received. For preventative training, each respondent rated whether their training provided a clear definition of sexual assault, taught the correlation between alcohol and increased risk for sexual assault, taught how to mitigate risk, taught bystander intervention. For after-action training, each respondent indicated whether their training taught how to obtain medical care, explained the role of the chain of command, explained reporting options, identified points of contact for reporting, explained available resources for victims. A person is coded with a "1" if he or she "strongly disagree[d]" or "disagree[d]" that their training performed the above functions. A person is coded with a "2" if he or she "neither agree[d] nor disagree[d]" that their training performed the above functions. A person is coded with a "3" if he or she "agree[d]" or "strongly agree[d]" that their training performed the above functions (p. 169–170). The sequential numbering in coding this variable captures increasingly positively rated training. Based on these nine questions, a person is then coded as receiving effective training if he or she selected "agree" or "strongly agree" with five or more of the above questions.

6.   Deployment Status

Deployment or operations-related stress, namely combat, is correlated with increased sexual stressors and sexual assault or harassment risk factors (LeardMann et al., 2013, p. e215). However, due to the nature in which RAND's research team phrased each question concerning deployment and the experience of sexual misconduct, my analysis only examines the relationship between deployment and officially reported sexual assault. Therefore, only regressions on sexual assault/harassment reporting include deployment control variables. These variables include both deployed when sexual assault occurred and deployed when sexual harassment occurred.

The deployment indicator variables, one for sexual assault and one for sexual harassment, are comprised of only two follow survey questions, one from each module. Each of these questions asks the respondent if the offense occurred while he or she was deployed to a combat zone or drawing imminent danger or hostile fire pay. A person is

coded as being deployed if he or she answered yes to either of the two follow-up survey questions.

D.   METHODS

Since all four outcomes are binary, I estimated the following logit regressions separately by gender for each individual i with respect to my key independent variables namely, problematic workplace environment, leadership effectiveness, and training quality.

$$USE\_c_i = \beta_0 + \beta_1 * demog_i + \beta_2 * PV_i + \beta_3 * CmdClimate_i + \beta_4 * trngquality_i + \varepsilon_i$$

$$USE\_nc_i = \beta_0 + \beta_1 * demog_i + \beta_2 * PV_i + \beta_3 * CmdClimate_i + \beta_4 * trngquality_i + \varepsilon_i$$

$$Rep\_USEc_i = \beta_0 + \beta_1 * demog_i + \beta_2 * PV_i + \beta_3 * deploy_i + \beta_4 * CmdClimate_i + \beta_5 * trngquality_i + \varepsilon_i$$

$$Rep\_USEnc_i = \beta_0 + \beta_1 * demog_i + \beta_2 * PV_i + \beta_3 * deploy_i + \beta_4 * CmdClimate_i + \beta_5 * trngquality_i + \varepsilon_i$$

For regressions where the outcomes are whether a person experienced sexual assault or sexual harassment, I estimated five models. Model 1 includes just demographic information using the whole sample (i.e., those who answered the short form survey). Model 2 added prior victimization variables to Model 1. Model 3 has the same model specifications as Model 1 but the sample is limited to only the subset of individuals that answered the long form survey. Model 4 has the same model specifications as Model 2, but limited to only the subset of individuals that answered the long form survey. The comparisons between the two sets of models allow us to assess potential differences between the whole sample and the subsample that received more detailed questions. Finally, Model 5, the most comprehensive model, controls for demographics, prior victimization, command climate, and training quality variables.

For regression analysis on reporting of sexual harassment or assault, these models were conditional on respondents experiencing sexual assault or sexual harassment therefore have a much smaller sample size. Model 1 examines the whole sample of respondents who reported being sexually assaulted and controls for demographics,

deployment, and prior victimization. Model 2 follows the same specification as model 1 but restricted to the subset of individuals that answered the long form. Model 3 adds to Model 2 the information on command climate, and training quality. Models Four, Five, and Six follow the same pattern concerning the sample of respondents who reported being sexually harassed.

These models primarily identify the correlates of sexual assault/harassment and their reporting. Since privacy limitations restrict complete data access, omitted variables are an important concern with identifying these correlates as causal factors. Omitted variables bias occurs when some x variable that has an effect on the outcome y is left out of the model. For example, neither race nor education are in my model due to privacy, yet both of these variables are potentially correlated with other x variables in my model, and have some effect on sexual assault incidence or reporting (Breitenbecher, 2000, p. 37). Because I could not control for 100 percent for the potential bias that could result, the relationship between command climate, leadership effectiveness, training quality, and sexual assault/harassment incidence or reporting cannot be classified as a causal relationship. Thus, potential omitted variable bias and measurement error due to survey fatigue, poor recollection or lying—though mitigated through the use of a reference date and various survey forms may exist.

In the next chapter, I display the summary statistics for each of the outcome and control variables, and present and discuss the key findings from regression analysis.

IV. RESULTS

This chapter provides an analysis of the results from my logit regressions conducted on the models explained in Chapter III. I begin by discussing the weighted descriptive statistics by survey form for all five services. Next, I present my logit regression results with regard to sexual assault, sexual harassment, officially reported sexual assault, and officially reported sexual harassment outcome variables.

A. DESCRIPTIVE CHARACTERISTICS

Table 1 depicts the summary statistics for those respondents who completed the short-form survey, or whole sample. Column one depicts the entire population of the female sample—63,493 female service members and the percentage of those from each corresponding control variable. From left to right, column two depicts the percentage of women who did not experience any incident of sexual misconduct; column three depicts the percentages of those women who experienced sexual harassment; column four depicts the percentages of those women who experienced sexual assault. Columns five through eight repeat this pattern for male service members.

As seen in Table 1, females in the paygrade of E-1 to E-3 make up 21% of the sample. However, when constricted to those women who experienced sexual assault, E-1 to E-3 comprise 28% of the sample. Notably, the aggregate female and male summary statistics show a higher percentage of E-4s are being victimized, in general whether by way of sexual harassment or assault. Additionally, incidents of sexual misconduct seem most prevalent among Navy women—while they only make up 24% of the sample, they represent 32.5% of those who have been sexual assaulted or sexually harassed. In contrast, the Air force make up 29% of the overall sample, but only represent 18% of those who have been sexually assaulted or harassed. We see similar pattern among the male sample.

As expected, the summary statistics show that those who have suffered prior victimization during their military career are more likely to be victimized, specifically sexual assaulted. Women reporting prior victimization during their military career made up 12% of the sample, and men reporting prior victimization during their military career

made up 1% of the sample. However, women previously victimized during their military career represented 36% of women who experienced unwanted sexual contact (i.e., sexual assault), and the same figure was 22% for men.

Table 1.   Descriptive Statistics for Control Variables by Gender
(Whole Sample with Abbreviated Survey)

Summary Statistics of Outcome Variables								
	Whole Sample w/ Abbreviated Survey_Female				Whole Sample w/ Abbreviated Survey_Male			
VARIABLES		No Incident	Unwanted Sexual Experience- No Contact	Unwanted Sexual Experience- Contact		No Incident	Unwanted Sexual Experience- No Contact	Unwanted Sexual Experience- Contact
Unwanted Sexual Experience- contact	0.10				0.03			
	[0.00]				[0.00]			
Reported among those that experienced USE_c	0.16				0.06			
	[0.01]				[0.01]			
Unwanted Sexual Experience- no physical contact	0.24				0.11			
	[0.00]				[0.00]			
Reported among those that experienced USE_nc	0.21				0.1			
	[0.00]				[0.01]			
E-1 to E_3	0.21	0.20	0.24	0.28	0.20	0.19	0.26	0.27
	[0.00]	[0.00]	[0.01]	[0.01]	[0.00]	[0.00]	[0.01]	[0.02]
E-4	0.23	0.21	0.30	0.31	0.22	0.20	0.31	0.35
	[0.00]	[0.00]	[0.01]	[0.01]	[0.00]	[0.00]	[0.01]	[0.02]
E-5 to E-6	0.27	0.28	0.26	0.23	0.30	0.30	0.28	0.27
	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.00]	[0.01]	[0.02]
E-7 to E-9	0.09	0.11	0.06	0.04	0.11	0.12	0.05	0.04
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
O-1 to O-3	0.12	0.12	0.11	0.10	0.09	0.09	0.07	0.04
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
O-4 to O-6	0.06	0.07	0.03	0.02	0.07	0.07	0.02	0.02
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
W1-W5 & W1-O3; rank7 & rank8 combined	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Navy	0.24	0.22	0.31	0.34	0.21	0.20	0.25	0.31
	[0.00]	[0.00]	[0.01]	[0.01]	[0.00]	[0.00]	[0.01]	[0.02]
Army	0.38	0.38	0.41	0.38	0.41	0.40	0.44	0.40
	[0.00]	[0.00]	[0.01]	[0.01]	[0.00]	[0.00]	[0.01]	[0.02]
AirForce	0.29	0.32	0.18	0.17	0.22	0.23	0.12	0.10
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]
Marines	0.06	0.05	0.08	0.09	0.14	0.14	0.16	0.18
	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.00]	[0.01]	[0.02]
CoastGuard	0.03	0.03	0.02	0.02	0.03	0.03	0.02	0.02
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Prior victimization during military career	0.12	0.07	0.25	0.36	0.01	0.01	0.07	0.22
	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.00]	[0.01]	[0.02]
Prior victimization before the military	0.08	0.05	0.15	0.22	0.01	0.00	0.03	0.09
	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.00]	[0.00]	[0.01]
Observations	63,493	48,944	13,154	5,199	75,656	69,141	5,989	1,477

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Table 2 depicts the summary statistics for the subsample of respondents who answered the complete long form survey—recall from Chapter III that a random subset of respondents was selected for answering additional questions, so we expect this sub sample's demographic and service characteristics to be similar to that of the whole sample. The column organization follows the same pattern as in Table 1; however, the sample sizes are smaller—8,311 women and 10,018 men. The trends also follow the same pattern as observed in the whole sample, with some new discoveries due to the more detailed version of the survey. Specifically, females reporting a problematic workplace make up only 8% of the sample, but of those who reported sexual harassment and sexual assault, females reporting a problematic workplace make up 19% and 23% of the sample, respectively. Ineffective leadership depicts a similar trend, however, with a lesser magnitude. Of those women who reported sexual harassment or sexual assault, 18% and 20% of them reported ineffective leadership, respectively. Those who reported ineffective leadership only represent 6% of the overall sample of women. The same pattern may be observed in the male sample.

Table 2. Descriptive Statistics for Control Variables by Gender
(Random Subsample with Complete Survey)

Summary Statistics of Outcome Variables	Random Subsample w/ Complete Survey_Female				Random Subsample w/ Complete Survey_Male			
VARIABLES		No Incident	Unwanted Sexual Experience- No Contact	Unwanted Sexual Experience- Contact		No Incident	Unwanted Sexual Experience- No Contact	Unwanted Sexual Experience- Contact
Unwanted Sexual Experience- contact	0.10				0.03			
	[0.01]				[0.00]			
Reported among those that experienced USE_c	0.16				0.11			
	[0.02]				[0.04]			
Unwanted Sexual Experience- no physical contact	0.24				0.11			
	[0.01]				[0.01]			
Reported among those that experienced USE_nc	0.38				0.19			
	[0.01]				[0.02]			
E-1 to E_3	0.21	0.20	0.25	0.29	0.18	0.18	0.21	0.20
	[0.01]	[0.01]	[0.02]	[0.03]	[0.01]	[0.01]	[0.03]	[0.06]
E-4	0.22	0.19	0.30	0.35	0.22	0.21	0.34	0.41
	[0.01]	[0.01]	[0.02]	[0.03]	[0.01]	[0.01]	[0.03]	[0.07]
E-5 to E-6	0.27	0.28	0.25	0.21	0.31	0.31	0.32	0.29
	[0.01]	[0.01]	[0.01]	[0.02]	[0.01]	[0.01]	[0.02]	[0.05]
E-7 to E-9	0.09	0.10	0.05	0.03	0.10	0.11	0.04	0.03
	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.00]	[0.01]	[0.01]
O-1 to O-3	0.13	0.14	0.12	0.09	0.10	0.10	0.06	0.04
	[0.00]	[0.00]	[0.01]	[0.01]	[0.00]	[0.00]	[0.01]	[0.01]
O-4 to O-6	0.06	0.08	0.02	0.03	0.07	0.08	0.02	0.01
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]
W1-W5 & W1-O3; rank7 & rank8 combined	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]
Navy	0.27	0.24	0.35	0.40	0.23	0.22	0.28	0.36
	[0.01]	[0.01]	[0.02]	[0.03]	[0.01]	[0.01]	[0.02]	[0.07]
Army	0.34	0.33	0.37	0.32	0.37	0.37	0.39	0.36
	[0.01]	[0.01]	[0.01]	[0.02]	[0.01]	[0.01]	[0.03]	[0.06]
AirForce	0.29	0.33	0.18	0.17	0.22	0.23	0.13	0.12
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.03]
Marines	0.07	0.07	0.08	0.09	0.15	0.15	0.18	0.16
	[0.00]	[0.00]	[0.01]	[0.02]	[0.01]	[0.01]	[0.03]	[0.05]
CoastGuard	0.03	0.03	0.02	0.02	0.03	0.03	0.02	0.01
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Prior victimization during military career	0.12	0.07	0.25	0.39	0.01	0.01	0.07	0.16
	[0.00]	[0.00]	[0.01]	[0.03]	[0.00]	[0.00]	[0.01]	[0.04]
Prior victimization before the military	0.08	0.05	0.15	0.21	0.01	0.00	0.03	0.05
	[0.00]	[0.00]	[0.01]	[0.02]	[0.00]	[0.00]	[0.01]	[0.02]
Problematic Workplace Environment	0.08	0.04	0.19	0.23	0.07	0.04	0.27	0.30
	[0.00]	[0.00]	[0.01]	[0.02]	[0.01]	[0.00]	[0.03]	[0.06]
Ineffective Leadership	0.06	0.02	0.18	0.20	0.03	0.01	0.19	0.22
	[0.00]	[0.00]	[0.01]	[0.02]	[0.00]	[0.00]	[0.03]	[0.05]
Preventative Training Received	0.92	0.93	0.86	0.87	0.91	0.92	0.84	0.84
	[0.00]	[0.00]	[0.01]	[0.02]	[0.00]	[0.00]	[0.02]	[0.04]
After Incident Training Received	0.92	0.94	0.88	0.89	0.92	0.92	0.85	0.85
	[0.00]	[0.00]	[0.01]	[0.02]	[0.00]	[0.00]	[0.02]	[0.04]
Observations	8,311	6,513	1,629	628	10,018	9,161	781	175

B. MULTIVARIATE RESULTS

Table 3 describes the results of the logit regressions for the sexual assault outcome variable across all five models for females. In each of the models, the majority of the coefficient estimates are statistically significant. Moreover, the results are consistent with the findings in prior research (Department of Defense, 2012, 2013, 2014, 2015).

Model 2 utilizes all available demographics and service characteristics from the whole sample. First, enlisted rank is more likely to experience sexual assault compared to officers (officers' odds ratio=0.48, p<0.01), and the lowest ranked enlisted (i.e., reference group)—E-1 to E-3 have the highest odds of sexual assault victimization among women relative to higher ranked service members. Second, there are systematic differences in sexual assault rates across the service branches. Relative to a comparable Army female service member, a Navy and Marine female service member is 1.42 and 1.43 times more likely to experience sexual assault, respectively (p<0.05 for both). Third, prior victimization especially during military career is strongly associated with experiencing sexual assault in the past 12 months. In particular, women who had prior victimization experience in their military career are 5.31 times more likely to experience sexual assault within the past 12 months relative to those without prior victimization who have comparable demographic and service characteristics.

Comparing Model 2 and 4 reveals that our estimates remain similar when analyzing the sub sample of respondents that answered the additional questions on the long-form survey. The most comprehensive model, Model 5, shows that after controlling for demographics and prior victimization, work environment conditions are strongly associated with unwanted sexual experience. In particular, holding all other things constant, a problematic workplace environment and ineffective leadership is associated with 2.26 and 2.41 higher odds of being sexually assaulted among women, respectively, relative to women who do not report a problematic workplace environment or ineffective leadership. Lastly, and also in keeping with prior research on the effectiveness of sexual assault training, holding all else constant, receiving training in the last year in prevention or response is associated with 0.68 lower odds of being sexually assaulted among women (Breitenbecher, 2000, p. 23; Stander & Thomsen, 2016, p. 20) relative to no training.

Table 3. Sexual Assault—Female Regression Table

Regression Analysis of Sexual Assault by Gender Female					
	Model 1	Model 2	Model 3	Model 4	Model 5
	Whole Sample w/ Abbreviated Survey		Random Subsample w/ Complete Survey		
VARIABLES	Demographics	Demographics + Prior Victimization History	Demographics	Demographics + Prior Victimization History	Demographics + Prior Victimization History + Command Climate + Training Quality
E-4	1.01	0.84***	1.21	1.00	0.88
	[0.06]	[0.05]	[0.19]	[0.16]	[0.15]
E-5 to E-6	0.65***	0.47***	0.54***	0.39***	0.36***
	[0.03]	[0.03]	[0.08]	[0.06]	[0.06]
E-7 to E-9	0.37***	0.25***	0.22***	0.14***	0.15***
	[0.03]	[0.02]	[0.05]	[0.03]	[0.03]
anyofficer	0.64***	0.48***	0.50***	0.36***	0.39***
	[0.04]	[0.03]	[0.08]	[0.06]	[0.07]
O-4 to O-6	0.45***	0.38***	0.56***	0.50***	0.51***
	[0.04]	[0.03]	[0.12]	[0.11]	[0.12]
Warrants and LDOs	0.59***	0.55***	0.98	1.08	0.75
	[0.09]	[0.09]	[0.40]	[0.44]	[0.35]
Navy	1.42***	1.36***	1.52***	1.47***	1.51***
	[0.07]	[0.07]	[0.20]	[0.20]	[0.22]
AirForce	0.63***	0.64***	0.63***	0.65***	0.70***
	[0.03]	[0.03]	[0.07]	[0.08]	[0.08]
Marines	1.43***	1.25***	1.26	1.16	1.13
	[0.10]	[0.09]	[0.25]	[0.22]	[0.23]
CoastGuard	0.75***	0.67***	0.72**	0.65***	0.75*
	[0.07]	[0.06]	[0.10]	[0.10]	[0.11]
Prior victimization during military career		5.27***		6.29***	5.31***
		[0.26]		[0.84]	[0.76]
Prior victimization before the military		1.96***		1.81***	2.00***
		[0.12]		[0.31]	[0.36]
Problematic Workplace Environment					2.26***
					[0.41]
Ineffective Leadership					2.41***
					[0.49]
Training received in prevention and/or response					0.68**
					[0.11]
Constant	0.15***	0.12***	0.16***	0.13***	0.15***
	[0.01]	[0.01]	[0.02]	[0.02]	[0.03]
Observations	63,493	63,493	9,050	9,050	8,717
see form in brackets					
*** p<0.01, ** p<0.05, * p<0.1					
The following are reference groups for the variables listed: E-1 to E-3					
O-1 to O-3					
Army					

Table 4 depicts the results of the logit regressions for the sexual assault outcome variable across all five models for males. Overall, these models observed the same results and trends as the female models, but with fewer statistically significant coefficient estimates. Nonetheless, among the key independent variables of prior victimization—especially during one's military career, problematic workplace environment, ineffective leadership, and training, were each significant and trending in the same direction as the female model. The effect of prior victimization in the military trends in the same direction as the female model, but with a much greater magnitude—males service members who had prior victimization experience in their military career are 12.44 times more likely to experience sexual assault within the past 12 months relative to those without prior victimization—the equivalent magnitude in the female sample is 5.31 times.

Similar to Table 3, Table 4 shows that the odds of victimization among males is highest for enlisted relative to officer ranks (Model 2—officers' odds ratio=0.28 p<0.01). The same trends across service branch exists among males; a male in the Navy is 1.5 times (Model 2, p<0.01) more likely to report sexual assault relative to a comparable Army male. The estimate for a male Marine is not statistically significant.

A comparison between Models 2 and 4 reveals a level of consistency between the random subsample that completed the long-form survey and those males who completed the whole sample. However, among comparable males, according to Model 2 those who experience prior victimization in the military are 36.89 times more likely to be report victimization (p<0.01) relative to those who did not. Meanwhile, Model 4 shows an odds ratio of 15.87 for that same group (p<0.01).

Model 5 shows a sizeable difference, but consistently higher odds ratio for victimization, between those comparable males who were victimized before the military and those who were victimized during their military career (5.57 p<0.01 and 12.44 p<0.01, respectively). In addition, among comparable males, those who reported a problematic workplace environment or ineffective leadership were 3.25 (p<0.01) and 2.75 (p<0.01) times more likely to report sexual assault relative to men who did not report a problematic workplace environment or ineffective leadership.

Table 4. Sexual Assault—Male Regression Table

Regression Analysis of Sexual Assault by Gender					
Male					
	Model 1	Model 2	Model 3	Model 4	Model 5
	Whole Sample w/ Abbreviated Survey		Random Subsample w/ Complete Survey		
VARIABLES	Demographics	Demographics + Prior Victimization History	Demographics	Demographics + Prior Victimization History	Demographics + Prior Victimization History + Command Climate + Training Quality
E-4	1.24	1.14	1.15	1.28	1.19
	[0.17]	[0.16]	[0.41]	[0.43]	[0.43]
E-5 to E-6	0.68***	0.55***	0.64	0.58*	0.63
	[0.08]	[0.07]	[0.20]	[0.18]	[0.20]
E-7 to E-9	0.26***	0.20***	0.24***	0.22***	0.29***
	[0.04]	[0.03]	[0.09]	[0.08]	[0.11]
anyofficer	0.34***	0.28***	0.29***	0.29***	0.36***
	[0.05]	[0.04]	[0.11]	[0.11]	[0.13]
O-4 to O-6	0.72**	0.65***	0.53	0.49	0.54
	[0.11]	[0.11]	[0.22]	[0.21]	[0.24]
Warrants and LDOs	0.74	0.86	1.54	1.53	1.84
	[0.17]	[0.21]	[0.80]	[0.84]	[1.06]
Navy	1.60***	1.50***	1.57	1.55	1.53
	[0.18]	[0.19]	[0.48]	[0.50]	[0.53]
AirForce	0.49***	0.53***	0.52**	0.58*	0.74
	[0.05]	[0.05]	[0.16]	[0.18]	[0.24]
Marines	1.19	1.18	1.35	1.41	1.38
	[0.16]	[0.17]	[0.47]	[0.49]	[0.51]
CoastGuard	0.65***	0.64***	0.33***	0.35***	0.44**
	[0.11]	[0.11]	[0.10]	[0.11]	[0.14]
Prior victimization during military career		36.89***		15.87***	12.44***
		[5.14]		[8.13]	[5.78]
Prior victimization before the military		2.13**		5.19	5.57**
		[0.68]		[5.44]	[4.68]
Problematic Workplace Environment					3.25***
					[1.13]
Ineffective Leadership					2.75**
					[1.09]
Training received in prevention and/or response					0.44***
					[0.12]
Constant	0.04***	0.04***	0.05***	0.04***	0.05***
	[0.01]	[0.00]	[0.02]	[0.01]	[0.02]
Observations	75,656	75,656	10,797	10,797	10,426
see form in brackets					
*** p<0.01, ** p<0.05, * p<0.1					
The following are reference groups for the variables listed: E-1 to E-3					
O-1 to O-3					
Army					

Table 5 shows the results of the logit regressions for the sexual harassment outcome variable across all models for females. In general, the factors that are associated with sexual assault in the female sample carry over to the analysis on sexual harassment with similar magnitude and statistical significance. One small difference is the odds of being sexually harassed among women are highest among E-4s (not E-1 to E-3 as in the case of sexual assault). Model 2, reflecting demographics and service characteristics—particularly prior victimization, shows female E-4's are 1.06 times more likely to report sexual assault relative to females in the rank of E-1 to E-3 ($p<0.1$). In addition, after controlling for demographics, prior victimization, command climate, and training quality, women who experience ineffective leadership are 4.64 times more likely to be sexually harassed (Model 5, $p<0.01$). This particular independent variable appears to have much greater effect on sexual harassment than on sexual assault.

When comparing Models 2 and 4, some estimates are no longer statistically significant, though the magnitude of the coefficient estimates is generally consistent. In general, the key independent variables trend in the same direction and observe the same effects on sexual harassment as on sexual assault. Of particular note, ineffective leadership seems to have the most powerful effect on sexual harassment incidence. Among comparable women, those who reported ineffective leadership are 4.64 times more likely to be sexually harassed relative to those who did not report ineffective leadership ($p<0.01$). This coefficient estimate is considerably higher than the estimate for problematic workplace environment (2.87, $p<0.01$), and this difference is not observed in the sexual assault regression analysis. Lastly, better training at the work place is associated with lower odds (odds ratio of 0.64, $p<0.01$) of experiencing incidence of sexual harassment among comparable women, relative to those who did not report a positive training experience in the last 12 months.

Table 5. Sexual Harassment—Female Regression Model

Regression Analysis of Sexual Harassment by Gender					
Female					
	Model 1	Model 2	Model 3	Model 4	Model 5
	Whole Sample w/ Abbreviated Survey		Random Subsample w/ Complete Survey		
VARIABLES	Demographics	Demographics + Prior Victimization History	Demographics	Demographics + Prior Victimization History	Demographics + Prior Victimization History + Command Climate + Training Quality
E-4	1.19***	1.08*	1.31**	1.19	1.04
	[0.05]	[0.05]	[0.15]	[0.14]	[0.13]
E-5 to E-6	0.89***	0.75***	0.81**	0.68***	0.66***
	[0.03]	[0.03]	[0.08]	[0.07]	[0.07]
E-7 to E-9	0.51***	0.40***	0.43***	0.33***	0.35***
	[0.02]	[0.02]	[0.06]	[0.04]	[0.05]
anyofficer	0.79***	0.67***	0.73***	0.62***	0.69***
	[0.03]	[0.03]	[0.08]	[0.07]	[0.08]
O-4 to O-6	0.47***	0.42***	0.40***	0.36***	0.34***
	[0.02]	[0.02]	[0.06]	[0.05]	[0.05]
Warrants and LDOs	0.57***	0.54***	0.71	0.74	0.59*
	[0.06]	[0.06]	[0.20]	[0.21]	[0.17]
Navy	1.27***	1.24***	1.19*	1.16	1.20*
	[0.04]	[0.04]	[0.11]	[0.11]	[0.12]
AirForce	0.52***	0.52***	0.49***	0.49***	0.55***
	[0.01]	[0.01]	[0.04]	[0.04]	[0.04]
Marines	1.30***	1.19***	1.05	0.99	1.00
	[0.07]	[0.06]	[0.15]	[0.14]	[0.14]
CoastGuard	0.74***	0.69***	0.69***	0.64***	0.71***
	[0.04]	[0.04]	[0.06]	[0.06]	[0.07]
Prior victimization during military career		3.73***		4.05***	3.41***
		[0.13]		[0.38]	[0.36]
Prior victimization before the military		1.82***		1.87***	2.04***
		[0.09]		[0.24]	[0.27]
Problematic Workplace Environment					2.87***
					[0.39]
Ineffective Leadership					4.64***
					[0.72]
Training received in prevention and/or response					0.64***
					[0.07]
Constant	0.39***	0.35***	0.43***	0.37***	0.44***
	[0.01]	[0.01]	[0.04]	[0.04]	[0.06]
Observations	63,493	63,493	9,050	9,050	8,717
see form in brackets					
*** p<0.01, ** p<0.05, * p<0.1					
The following are reference groups for the variables listed: E-1 to E-3					
O-1 to O-3					
Army					

Table 6 portrays the results of the logit regressions for the sexual harassment outcome variable across all models for males. Consistent with the findings represented in Table 5, Model 2 shows being in the Navy relative to the Army is associated with higher odds of being sexually harassed among men (odds ratio=1.11, $p<0.1$). In addition, enlisted males experience sexual harassment at higher rates than officers—odds ratio=0.54 for officer ($p<0.01$). Similarly, the effect of each of the key independent variables trends in the same direction, again with a different magnitude, and fewer coefficient estimates found statistically significant.

Among comparable men, men who were previously victimized during their military career have consistently increased odds of reporting sexual harassment across Models 2, 4, and 5, relative to those men who did not report prior victimization. Specifically, the Model 5 shows that relative to a comparable male service member, one that reported prior victimization is 5.35 times more likely to be sexually harassed in the past 12 months ($p<0.01$). Similar to the female sexual harassment regression output, among comparable men, those who reported ineffective leadership are 5.93 times more likely to experience sexual harassment relative to those men who did not report ineffective leadership. The difference between the coefficient estimates on ineffective leadership and problematic workplace environment, while not as dramatic, is still telling. Though both variables are associated with increased odds of sexual harassment, again it appears ineffective leadership has a more pronounced effect on sexual harassment than problematic workplace environment (OR=4.27, $p<0.01$).

Table 6.   Sexual Harassment—Male Regression Model

Regression Analysis of Sexual Harassment by Gender Male					
	Model 1	Model 2	Model 3	Model 4	Model 5
	Whole Sample w/ Abbreviated Survey		Random Subsample w/ Complete Survey		
VARIABLES	Demographics	Demographics + Prior Victimization History	Demographics	Demographics + Prior Victimization History	Demographics + Prior Victimization History + Command Climate + Training Quality
E-4	1.15*	1.12	1.35	1.41*	1.22
	[0.09]	[0.09]	[0.27]	[0.29]	[0.26]
E-5 to E-6	0.72***	0.68***	0.91	0.90	0.93
	[0.05]	[0.05]	[0.16]	[0.16]	[0.17]
E-7 to E-9	0.33***	0.31***	0.38***	0.37***	0.43***
	[0.03]	[0.03]	[0.08]	[0.08]	[0.09]
anyofficer	0.57***	0.54***	0.58***	0.59***	0.70*
	[0.04]	[0.04]	[0.11]	[0.12]	[0.14]
O-4 to O-6	0.46***	0.44***	0.53***	0.52***	0.52***
	[0.03]	[0.03]	[0.10]	[0.10]	[0.10]
Warrants and LDOs	0.48***	0.50***	0.63	0.61	0.67
	[0.06]	[0.06]	[0.19]	[0.18]	[0.21]
Navy	1.15**	1.11*	1.21	1.18	1.12
	[0.07]	[0.07]	[0.17]	[0.17]	[0.19]
AirForce	0.50***	0.51***	0.54***	0.56***	0.64***
	[0.02]	[0.03]	[0.07]	[0.08]	[0.09]
Marines	0.98	0.97	1.24	1.25	1.19
	[0.07]	[0.07]	[0.24]	[0.24]	[0.23]
CoastGuard	0.63***	0.63***	0.84	0.86	1.03
	[0.05]	[0.05]	[0.11]	[0.12]	[0.15]
Prior victimization during military career		10.02***		7.10***	5.35***
		[1.12]		[2.56]	[2.13]
Prior victimization before the military		1.89***		3.21	3.30*
		[0.42]		[2.36]	[2.34]
Problematic Workplace Environment					4.27***
					[0.84]
Ineffective Leadership					5.93***
					[1.96]
Training received in prevention and/or response					0.66***
					[0.11]
Constant	0.18***	0.18***	0.14***	0.13***	0.14***
	[0.01]	[0.01]	[0.03]	[0.02]	[0.03]
Observations	75,656	75,656	10,797	10,797	10,426

see form in brackets
*** p<0.01, ** p<0.05, * p<0.1
The following are reference groups for the variables listed: E-1 to E-3
O-1 to O-3
Army

C.   ADDITIONAL ANALYSIS—SEXUAL ASSAULT AND SEXUAL HARASSMENT REPORTING

In this section, I present results on the correlates of reporting unwanted sexual experience. All these regressions are conditional on individuals experiencing sexual assault or harassment. Similar to before, I estimate the regressions separately by gender.

Table 7 illustrates the findings for regression analysis of sexual assault and sexual harassment reporting among women. Few of the independent variables are statistically significant, likely due to the much smaller sample size. Notably, relative to junior officers (O-1 to O-3), a senior officer (O-4 to O-6) is 1.77 times more likely to report sexual harassment ($p<0.05$), but not sexual assault ($p<0.1$). In addition, females and prior victims of sexual assault are 1.95 and 1.34 times more likely, respectively, to report sexual assault and sexual harassment incidents relative to women in similar comparison groups. In general, those who experienced sexual assault during deployment are 4.77 times more likely ($p<0.01$) to report the incidents relative to comparable women who were not deployed. This relationship remains even after I take into account work environment conditions. The association between deployment and sexual harassment reporting is much weaker. In the whole sample, those who experience sexual harassment during deployment are 3.86 times ($p<0.01$) more likely to report the incident than a comparable woman who was not deployed, but the coefficient estimate becomes statistically insignificant once I restrict the analysis to the random subsample that answered the complete survey and take into account work environment conditions.

Table 7. Sexual Assault/Harassment Reporting—Female Regression Table

Regression Analysis of Sexual Misconduct Reporting by Gender
Female

VARIABLES	Reported if experienced SA			Reported if experienced SH		
	Whole Sample w/ Abbreviated Survey	Random Subsample w/ Complete Survey		Whole Sample w/ Abbreviated Survey	Random Subsample w/ Complete Survey	
	Demographics + Deployment & Prior Victimization History	Demographics + Deployment & Prior Victimization History	Demographics + Deployment & Prior Victimization History + Command Climate + Training Quality	Demographics + Deployment & Prior Victimization History	Demographics + Deployment & Prior Victimization History	Demographics + Deployment & Prior Victimization History + Command Climate + Training Quality
E-4	0.73**	0.54*	0.47**	1.13	1.39	1.46*
	[0.10]	[0.20]	[0.18]	[0.10]	[0.29]	[0.32]
E-5 to E-6	0.48***	0.53*	0.47*	1.01	1.07	1.08
	[0.06]	[0.20]	[0.18]	[0.08]	[0.20]	[0.21]
E-7 to E-9	0.34***	0.19**	0.18**	1.02	1.12	1.22
	[0.07]	[0.16]	[0.14]	[0.11]	[0.28]	[0.32]
anyofficer	0.45***	0.27***	0.28***	0.73***	0.68*	0.73
	[0.07]	[0.13]	[0.13]	[0.07]	[0.14]	[0.16]
O-4 to O-6	0.82	1.22	1.06	1.29**	1.59*	1.77**
	[0.21]	[1.03]	[0.83]	[0.15]	[0.44]	[0.48]
Warrants and LDOs	0.77	2.33	1.97	1.40	1.46	1.20
	[0.40]	[2.59]	[2.03]	[0.31]	[0.74]	[0.62]
Navy	0.62***	0.35***	0.33***	1.01	0.67**	0.72*
	[0.08]	[0.13]	[0.13]	[0.07]	[0.12]	[0.13]
AirForce	0.91	0.69	0.67	0.86**	0.68***	0.78*
	[0.10]	[0.21]	[0.21]	[0.05]	[0.10]	[0.11]
Marines	0.75*	0.70	0.72	1.02	0.97	0.94
	[0.13]	[0.35]	[0.36]	[0.11]	[0.23]	[0.23]
CoastGuard	0.84	0.54	0.54	1.32**	0.76	0.85
	[0.21]	[0.22]	[0.22]	[0.16]	[0.13]	[0.15]
Prior victimization during military career	1.95***	2.31**	2.10**	1.34***	1.39**	1.26
	[0.21]	[0.77]	[0.76]	[0.09]	[0.22]	[0.21]
Prior victimization before the military	0.84	0.64	0.65	0.97	1.19	1.24
	[0.11]	[0.26]	[0.28]	[0.08]	[0.22]	[0.24]
Deployed when sexual assault occurred	2.88***	4.77***	4.09**			
	[0.57]	[2.54]	[2.41]			
Problematic Workplace Environment			1.14			2.27***
			[0.40]			[0.40]
Ineffective Leadership			2.07**			1.54**
			[0.68]			[0.30]
Training received in prevention and/or response			1.40			1.14
			[0.53]			[0.20]
Deployed when sexual harassment occurred				3.86***	1.36*	1.17
				[0.32]	[0.23]	[0.21]
Constant	0.25***	0.33***	0.23***	0.21***	0.58***	0.39***
	[0.03]	[0.10]	[0.10]	[0.02]	[0.10]	[0.09]
Observations	5,199	710	682	13,154	1,806	1,756
see form in brackets						
*** p<0.01, ** p<0.05, * p<0.1						
The following are reference groups for the variables listed: E-1 to E-3						
O-1 to O-3						
Army						

Table 8 shows the findings for regression analysis of sexual assault and sexual harassment reporting among men. This table follows the same general model as found in Table 7. However, due to a smaller sample size—a smaller proportion of men are victimized and an even small proportion report in comparison to women—many variables could not produce any empirical findings. Moreover, very few of the findings are statistically significant. The few statistically significant findings among men are captured in the deployment status and prior victimization variables; however, in the case of sexual assault, the sample size is too small to get a reasonable coefficient estimate without a sizeable standard error. An exception to this general finding is deployment status for sexual harassment. Here, in Models 4, 5, and 6, holding all else constant, being deployed when the sexual harassment occurred is associated with 6.79, 2.87, and 2.70 higher odds of reporting among men in similar comparison groups. As expected, the sample sizes for sexual harassment are much larger in comparison to sexual assault.

Table 8.   Sexual Assault/Harassment Reporting—Male Regression Table

Regression Analysis of Sexual Misconduct Reporting by Gender Male						
	Reported if experienced SA			Reported if experienced SH		
	Whole Sample w/ Abbreviated Survey	Random Subsample w/ Complete Survey		Whole Sample w/ Abbreviated Survey	Random Subsample w/ Complete Survey	
VARIABLES	Demographics + Deployment & Prior Victimization History	Demographics + Deployment & Prior Victimization History	Demographics + Deployment & Prior Victimization History + Command Climate + Training Quality	Demographics + Deployment & Prior Victimization History	Demographics + Deployment & Prior Victimization History	Demographics + Deployment & Prior Victimization History + Command Climate + Training Quality
E-4	1.32	0.27	1.23	1.18	0.47	0.46
	[0.66]	[0.56]	[2.87]	[0.29]	[0.24]	[0.23]
E-5 to E-6	1.97	0.43	1.15	1.18	0.50	0.49
	[0.85]	[0.70]	[3.29]	[0.26]	[0.23]	[0.22]
E-7 to E-9	1.79	0.27	1.21	1.03	0.45	0.41
	[1.17]	[0.55]	[2.56]	[0.25]	[0.24]	[0.23]
anyofficer	1.72	0.01	0.13	0.85	0.46	0.41*
	[0.96]	[0.03]	[0.42]	[0.21]	[0.23]	[0.22]
O-4 to O-6 = o,		-	-			
Warrants and LDOs		-	-			
Navy	0.59	0.02	0.02	0.88	0.63	0.63
	[0.30]	[0.05]	[0.05]	[0.17]	[0.24]	[0.24]
AirForce	0.26***	0.00*	0.01	0.79*	0.72	0.70
	[0.12]	[0.00]	[0.02]	[0.11]	[0.24]	[0.24]
Marines	0.94	0.10	0.30	0.72	0.71	0.68
	[0.38]	[0.23]	[0.82]	[0.19]	[0.37]	[0.36]
CoastGuard	1.09	0.40	0.23	1.13	0.63	0.56
	[0.48]	[1.05]	[0.77]	[0.25]	[0.23]	[0.22]
Prior victimization during military career	4.39***	187.39***	92.76***	1.35	1.36	1.47
	[1.90]	[266.71]	[94.03]	[0.42]	[0.81]	[0.85]
Prior victimization before the military	1.26	0.01	0.30	1.25	3.55	3.41
	[0.65]	[0.04]	[0.86]	[0.75]	[2.94]	[2.65]
Deployed when sexual assault occurred	21.87***	126,381.43**	38,222.69**			
	[10.08]	[737,207.00]	[193,949.41]			
Problematic Workplace Environment			1.91			0.95
			[1.76]			[0.37]
Ineffective Leadership			23.49**			0.82
			[34.40]			[0.36]
Training received in prevention and/or response			1.93			0.84
			[2.05]			[0.30]
O-4 to O-6	0.92			1.37	1.15	1.33
	[0.59]			[0.30]	[0.55]	[0.64]
Warrants and LDOs	0.64			1.39	1.37	1.44
	[0.92]			[0.51]	[1.03]	[1.09]
Reported USE (no contact) via offical channels				.	.	.
				[.]	[.]	[.]
Deployed when sexual harassment occurred				6.79***	2.87***	2.70***
				[1.27]	[1.07]	[1.01]
Constant	0.02***	0.08	0.00**	0.09***	0.39*	0.50
	[0.01]	[0.15]	[0.01]	[0.02]	[0.19]	[0.27]
Observations	1,477	186	182	5,989	862	836

see form in brackets
*** p<0.01, ** p<0.05, * p<0.1
The following are reference groups for the variables listed: E-1 to E-3
O-1 to O-3
Army

D.   KEY FINDINGS

In general, as seniority increases among enlisted or officer ranks, the odds of being sexually assaulted decreases among women. Furthermore, as anticipated, prior victimization—especially in the military, a problematic workplace environment, and ineffective leadership is associated with increased odds of experiencing sexual assault among women. From a branch of service DOD subculture perspective, holding all else constant, a female Sailor or Marine has higher odds of being sexually assaulted relative to the Army or Air Force. Lastly, receiving quality training in the last 12 months is associated with decreased odds of experiencing sexual assault among women. The effect of each of the control variables on the outcome variable, however, varies.

These same patterns are observed in sexual assault and sexual harassment among men and women. A few key exceptions, however, are the effect of prior victimization both before the military and during one's military career seems to be more dramatic among men; unlike sexual assault, sexual harassment is more prevalent among E-4s, rather than E-1 to E-3.

With respect to reporting, the very same trends are observed, but being deployed is associated with higher odds of reporting the offense—assault or harassment—among men and women both, holding all else constant.

In short, there appears to be systematic differences in the incidents of sexual assault and harassment across service branch and rank, and that reporting of such incidents are more likely if the incidents occurred during deployment. More importantly, work environment matters: problematic workplace environment, ineffective leadership, and inadequate training are all associated with higher likelihood of sexual assault and sexual harassment.

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V.   CONCLUSION AND RECOMMENDATIONS

As an active duty Sailor, I desire to be a part of the solution to the problem of sexual misconduct in the DOD. This research was motivated by a questioning attitude regarding the effectiveness quality of SAPR training in the Navy and throughout the DOD, as well as the impact of recent policy change. The military thrives on unit cohesion and shared values, perhaps more than any other organization. Moreover, the notion of being held to a higher standard should reflect a higher caliber of character among service men and women.

Sexual misconduct is one of the most irreversible and difficult to address types of offenses. It defiles the specific individuals involved and the command, inside and out, cascading ripple effects physically, emotionally, and psychologically. In this thesis, I endeavored to understand the risk factors associated with sexual assault, sexual harassment, and the reporting of these crimes in the U.S. military. Furthermore, I sought to understand how these crimes and the reporting of them is correlated to victim demographics, workplace environment characteristics, and training and leadership quality.

The key findings are in keeping with prior research, suggesting that command climate—both the work environment and leadership, culture, age are indicators of increased risk. The key findings also suggest that quality training within the last year may decrease incident occurrence. While limitations to this study do exist, namely measurement error due to general survey implications and questions that may not capture the information truly being sought, as well as omitted variables bias. The most significant limitations, perhaps are those pertaining to the data that is made available for public use—for example, no race/ethnicity, age, command or unit, rate or MOS, and other demographics, offender or perpetrator characteristics were available for this study. Prior research suggests that culture and climate are very significant factors in identifying who is at increased risk for sexual violence. Experience in the U.S. military suggests that each branch, designator, MOS, rank, command, unit, and even work-center has its own unique subculture and environment. This research was simply not able to capture such effects.

Nonetheless, the following recommendations should be considered for future study, policy, and training based on the research presented in this thesis:

1. Conduct non-punitive pre-service assessments to uncover prior exposure to hostile masculinity, delinquency, sexual promiscuity, and other childhood or pre-service experiences that are associated with higher risk. This information is critical to identifying those who are at higher risk upon entry into the armed forces, and identifying more specific target audiences for tiered-level training based on the results of pre-service assessments. More specific (i.e., gender-specific) and more targeted training (i.e., experience-dependent) should produce more impactful prevention results in the fight against sexual violence in the U.S. military.

2. Collect data and conduct a study on those found guilty in a courts martial or non-judicial punishment proceeding for some type of sexual misconduct or sexual violence. Limited data exists about offenders or perpetrators of sexual violence, particularly in the military. Limited data is a result of asking the wrong question, asking the right question to the wrong person, or failing to ask a question entirely. Each of these issues is present and with further research, more observations and determinations may be made about risk factors of sexual assault and sexual harassment. Furthermore, until such information has been collected and studied, any policy or training is inherently flawed, because policy-makers cannot understand the full scope of the problem.

3. Research the use of pornography both on and off military installations among military personnel and how that might be related to incidents of sexual harassment and sexual assault. While an ongoing debate exists about the correlation between pornography use and sexual violence (Silbert & Pines, 1984, p. 857; Bergen & Boyle, 2000, p. 227), no data exists on the subject in the military. Experience also shows that pornography is readily available in work and berthing spaces while on deployment and its use seemingly dramatically increases. While no consistent evidence links pornography to sexual violence, it is linked to sexual dysfunction—including desensitization, sexual promiscuity, and delinquency, which is correlated with an increased risk of perpetrating sexual assault or harassment (Malamuth et al., 1991, p. 670). A sex culture has most certainly developed in America over the past several decades, and its effects are far-

reaching (Daniels, 2005, p. 13-38). The prohibited areas in certain regions, whether a service member's permanent duty station or short port visit, are not exhaustive, and trips to brothels, "ping pong shows", and similar activities only further exacerbate the commercial sex culture in America and in the U.S. armed forces. Furthermore, research does indicate that prolonged exposure to pornography leads to emotional and psychological desensitization, erectile dysfunction, and a need for increasingly debase erotic material and action to achieve the desired outcome of the user (Park et al., 2016, p. 1–2). Given the substantial presence of pornography in the military life, it is crucial that more research is dedicated to find out whether policies targeting the use of pornography in the military might be an effective strategy to reduce unwanted sexual experiences.

4. Collect UIC, region, command, and geographic data via survey or DSAID statistics and merge with a more frequently (i.e., annual) administered *WGRA*-type survey. This information will unmask some of the trends covered by broad statistics of entire branches of services, rather than the sub-communities and sub-cultures found therein. Follow on research of those sub-communities and sub-cultures found to be problematic focused on uncovering what specific characteristics lend those environments to increased risk for sexual violence would also be a significant contribution to this body of research.

Continuing to earn back the trust of the American people and sustain a healthy—inside and out—fighting force requires a renewed mind and renewed vigor toward eradicating sexual violence in the DOD. Sexual violence is uniquely intertwined with the health of the force. In order to provide a healthy fighting force, a healthier understanding of the problems it faces must be achieved. My hope is this research and the findings, challenges, and recommendations herein will support such an endeavor.

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